CLAIMS

WHAT IS CLAIMED IS:

1. An image analysis method comprising:

obtaining a first image of a body part in a first plane, wherein the first image generates a first image data volume;

obtaining a second image of the body part in a second plane, wherein the second image generates a second image data volume; and

combining the first and second image data volumes to form a resultant image data volume, wherein the resultant image data volume is isotropic.

2. The method according to claim 1, wherein the combining step comprises:

obtaining from said first and second image data volume first and second gray values at a three-dimensional position;

interpolating a resultant gray value from said first and second gray values; and

assigning said resultant value to a voxel at said three-dimensional position of said resultant data volume.

3. The method according to claim 1, wherein said second image is taken at an angle between about 0 and about 180 degrees from the first image.

4. The method of claim 1, wherein the first image is taken at a first angle and the second image is taken at a second angle, and further wherein the first angle does not equal the second angle.

5. The method of claim 1, wherein the first image is taken at a first time and the second image is taken at a second time.

6. The method of claim 3, wherein the second image is taken at an angle between about 0 and about 90 degrees from the first image.

7. The method of claim 1, further including:

selecting a therapy in response to the resultant image data volume.

8. The method of claim 1, further including:

selecting a treatment in response to the resultant image data volume.

9. The method of claim 1, further including:

obtaining at least one additional image of a body part in a plane different than other planes, wherein the additional image generates an additional image data volume, wherein the additional data volume is combined with the first and second image data volumes to form a resultant data volume.

10. The method of claim 1, further including:
extracting a boundary image data volume from the resulting image data volume.

11. A method for producing isotropic or near-isotropic image data comprising:

obtaining a first image data volume from a first image in a first plane;

obtaining a second image data volume from a second image in a second plane;

extracting boundary image data from each of the first and second image data volumes; and

combining the extracted boundary image data to form a

resultant image data volume.

12. The method of claim 11, further including:

obtaining at least one additional image data volume from at least one additional image in a plane different than the first plane and the second plane;

extracting an additional boundary image data from the additional image data volume; and

combining the additional boundary image data volume with the resultant image data volume.

13. The method of claim 11, wherein the resultant image data volume is near-isotropic.

14. The method of claim 11, wherein the resultant image data volume is isotropic.

15. The method of claim 11, wherein the first plane is at an angle relative to the second plane.

16. The method of claim 15, wherein the angle is between about 0 and about 180 degrees.

17. The method of claim 16, wherein the angle is between about 0 and about 90 degrees.

18. A method for generating a three dimensional data volume comprising:

acquiring at least two data volumes from at least two images performed in two different planes;

combining the data volumes to form a resultant data volume;

selecting a therapy using the resultant data volume.

19. The method of claim 18, wherein the combining step comprises:

obtaining gray values for each data point in each of the data volumes;

interpolating a resultant gray value from gray values; and

assigning the resultant value to each data point of the resultant data volume.

20. The method of claim 19, further including;

extracting data corresponding to a surface to be scanned in each of the planes before combining said data.

21. The method of claim 18, wherein the two scans are performed at ninety degrees relative to one another.

22. A method for generating three dimensional data comprising:

obtaining a first image in a first plane producing a first data volume with a default resolution;

obtaining a second image in a second plane producing a second data volume with the default resolution;

combining the first and second data volumes to produce a resultant data volume, the resultant data volume having a resultant resolution.

23. The method of claim 22, wherein the resultant resolution is greater than the default resolution.

24. An image analysis method comprising:

obtaining at least one image of a body part in at least a first plane and a second plane, wherein the first plane generates a first image data volume and the second plane generates a second image data volume; and

combining the first and second image data volumes to form a resultant image data volume, wherein the resultant image data volume

is isotropic.

25. An image analysis method comprising:

obtaining at least one image of a body part in at least a first plane and a second plane, wherein the first plane generates a first image data volume and the second plane generates a second image data volume; and

combining the first and second image data volumes to form a resultant image data volume, wherein the resultant image data volume is near-isotropic.

26. A method for generating a three dimensional data volume comprising:

acquiring at least a first data volume and a second data volume from at least a first image and a second image, wherein the first image is obtained in a first plane and the second image is obtained in a second plane and further wherein the first plane is not equal to the second plane;

combining the first data volume and the second data volume to form a resultant data volume;

monitoring a therapy utilizing the resultant data volume.

27. The method of claim 26, wherein the combining step comprises:

obtaining gray values for each data point in each of the data volumes;

interpolating a resultant gray value from gray values; and

assigning the resultant value to each data point of the resultant data volume.

28. The method of claim 27, further including;

extracting data corresponding to a surface to be scanned in each of the planes before combining said data.

29. The method of claim 26, wherein the two scans are performed at ninety degrees relative to one another.

30. The method of claim 26, wherein said treatment includes a drug.

31. The method of claim 26, wherein said treatment includes a bioactive agent.

32. The method of claim 26, wherein said treatment includes surgery.

33. The method of claim 26, wherein the first data volume is obtained at a first time point T1 and the second data volume is obtained at a second time point T2.

34. A method for generating a three dimensional data volume comprising:

acquiring at least two data volumes from at least two images performed in two different planes;

combining the data volumes to form a resultant data volume;

selecting an implant utilizing the resultant data volume.

35. The method of claim 34, wherein the combining step comprises:

obtaining gray values for each data point in each of the data volumes;

interpolating a resultant gray value from gray values; and

assigning the resultant value to each data point of the resultant data volume.

36. The method of claim 35, further including;

extracting data corresponding to a surface to be scanned in each of the planes before combining said data.

37. The method of claim 34, wherein the two scans are performed

at ninety degrees relative to one another.

38. A method for generating a three dimensional data volume comprising:

acquiring at least two data volumes from at least two images performed in two different planes;

combining the data volumes to form a resultant data volume;

deriving an implant shape utilizing the resultant data volume.

39. The method of claim 38, wherein the combining step comprises:

obtaining gray values for each data point in each of the data volumes;

interpolating a resultant gray value from gray values; and

assigning the resultant value to each data point of the resultant data volume.

40. The method of claim 39, further including;

extracting data corresponding to a surface to be scanned in each of the planes before combining said data.

41. The method of claim 38, wherein the two scans are performed at ninety degrees relative to one another.